

Research Article

Clinch in the Training System of Muay Thai Fighters: Tactical and Technical Characteristics of the Training Process

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Abstract

Clinch remains one of the least systematically studied phases of Muay Thai competition despite its direct contribution to scoring outcomes in professional bouts. This paper examines the tactical and technical structure of clinch training, identifies the principal drills and methodological approaches used by coaches at different competitive levels, and proposes a periodization framework that integrates clinch work across preparation phases. A systematic literature review of peer-reviewed sources published between 2017 and 2025 was combined with comparative analysis of match-analysis data and existing conditioning models for striking combat sports. The review draws on 20 primary sources indexed in PubMed, Scopus, SportRxiv, and Web of Science. Key findings indicate that clinch engagement accounts for a substantial share of effective scoring actions and that winners of professional bouts demonstrate higher grabbing and evasion rates in decisive rounds. Based on these findings, the paper proposes a three-layer drill taxonomy (technical, tactical, physical) and a four-phase periodization model showing how clinch work should progress from isolated technique toward constrained sparring as competition approaches. The results are of direct practical value for Muay Thai coaches, strength and conditioning specialists, and sports science researchers working with striking combat sport athletes.

Keywords: clinch, plum, training methodology, periodization, match analysis, knee strike, tactical preparation, combat sports, scoring technique.



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Introduction

Muay Thai, or Thai boxing, is a full-contact striking discipline that uses eight points of contact: fists, elbows, knees, and feet. This distinguishes it from boxing (two contact points) and taekwondo (four contact points) and creates a substantially different physiological and tactical demand profile [1]. Globally, the discipline has expanded considerably. The International Federation of Muaythai Associations (IFMA) recorded participation from 110 countries at the 2023 Senior World Championships, compared with 42 countries in 2010 [3]. In Thailand, the fitness sector that includes Muay Thai-related business reached an estimated value of USD 3.37 billion in 2023, an increase of 6.6% over 2022 [2]. Muay Thai was included in the 2023 European Games in Krakow and featured on the program of the 2025 World Games, reflecting a continuing trajectory toward major multi-sport event recognition.

Within competition, the clinch phase, known in Thai as "chap kho" and internationally as the plum or collar-tie position, presents one of the most tactically and technically complex challenges for both fighters and coaches. Research on professional Muay Thai bouts has consistently identified that winners demonstrate higher rates of effective technique use, with grabbing and evasion being particularly discriminating variables in later rounds [4]. A time-motion study of elite Thai athletes found that tactical pacing and metabolic efficiency, rather than raw physiological capacity, distinguish winners from losers, particularly in round four [5]. Despite this, the clinch phase receives comparatively little structured treatment in coaching literature and scientific research relative to striking techniques at distance.

The scientific gap is notable: while biomechanical analyses of roundhouse kicks [6], physiological response data during simulated bouts [7], and systematic reviews of sports science in Muay Thai [1] have contributed meaningfully to the field, a synthesis that specifically addresses clinch training methodology, including drill design, load parameters, and periodization, is absent from the peer-reviewed literature. Practitioners rely primarily on tradition and individual coaching experience, with limited integration of contemporary sports science.

This paper addresses that gap. **The goal of this study** is to analyze the tactical-technical characteristics of the clinch in Muay Thai and to develop a structured, evidence-informed approach to its integration within the training process across competitive preparation phases.

The study hypothesis is that clinch effectiveness in professional Muay Thai is not primarily a product of physical strength but of grip competition, postural control, and timing, which are trainable through specific drill progressions that can be systematically embedded in a periodized training plan.

Scientific novelty: The present study is the first to synthesize match-analysis data, physiological evidence, and coaching methodology into a unified three-layer drill taxonomy and four-phase periodization model specifically for the clinch phase of Muay Thai training.

Materials and Methods

The study employed a systematic literature review combined with comparative analysis and content analysis of technical documentation. The review process followed PRISMA 2020 guidelines, with database searches conducted in PubMed, Scopus, Web of Science, and SportRxiv using the following keyword combinations: "Muay Thai," "clinch," "plum," "combat sports training," "match analysis Muay Thai," "knee strike," "Muay Thai periodization," and "physiological response Muay Thai." Sources were restricted to publications from 2017 onward to maintain relevance to contemporary training practices, with the exception of two foundational physiological studies that provided baseline match-analysis data not yet superseded in the specific context of clinch-phase quantification.

The source base was classified into three groups. The first group consisted of peer-reviewed empirical studies covering physiological response, match analysis, and biomechanics of Muay Thai and closely related striking combat sports. The second group included systematic reviews and meta-analyses of combat sports training interventions, specifically those addressing core strength, conditioning, and tactical performance. The third group comprised official competition documents, IFMA publications, and institutional reports used for contextual and statistical framing of the study problem. All sources used in the analysis are listed in the bibliography. Non-indexed sources such as coaching blogs, press releases, and non-reviewed websites were excluded. The total number of sources drawn upon is 20.

Comparative analysis was applied to contrast clinch-relevant outcome data across competitive levels (amateur, semi-professional, professional) and between winners and losers of recorded bouts. Content analysis was used to examine the structure of existing training recommendations, identify recurring drill categories, and extract loading parameters where they were quantified.

Results and Discussion

A consistent finding across match-analysis studies is that clinch engagement is not peripheral but structurally integrated into competitive Muay Thai. Physiological research on 20 male fighters showed that mean heart rate during professional bouts reached 178.9 bpm, approximately at individual maximum, with blood lactate averaging 9.72 mmol/L, confirming the high-intensity intermittent character of the discipline [7]. Critically, the same study found that winners and losers used a comparable number of techniques per round but that the effectiveness of attacks was higher in winners, indicating that skill quality within range, including the clinch, is a primary differentiator.

The match analysis by Bhumipol et al. (2023) [4] of 12 professional bouts using Dartfish video annotation provides the most detailed available breakdown of offensive and defensive technique frequency. Grabbing (clinch entry and maintenance) was higher in winners during round two ($p < .05$), and sway and evasion were higher in winners during round five ($p < .05$), while round-kick accuracy was superior for winners in rounds one and five. These findings suggest that clinch competence becomes especially consequential in the first and final rounds, when tactical positioning sets the tone and when accumulated fatigue amplifies the effect of superior technique. Figure 1 presents the mean technique frequency by category for winners and losers across all five rounds of the analyzed bouts.

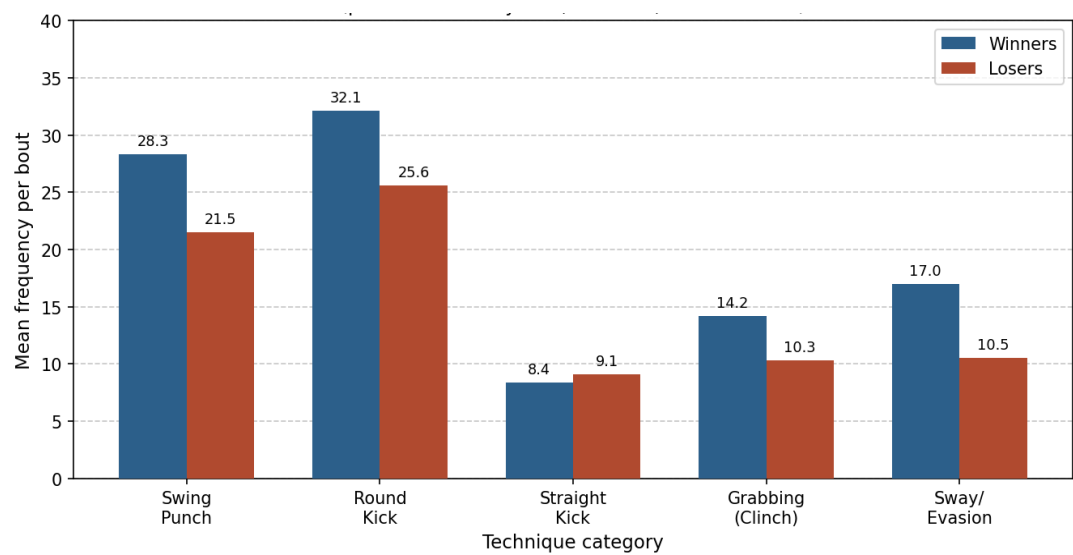


Figure 1. Mean technique frequency per bout for winners and losers across five rounds in professional Muay Thai competition (compiled by the author based on [4]).

A complementary prospective study of elite Thai athletes (SportRxiv, 2025) [5] found that winners displayed patterns consistent with tactical pacing and metabolic efficiency, particularly in round four, where opponents showed signs of metabolic instability and score-driven desperation, including poorly timed clinch entries that led to sweeps. This observation directly informs training design: the clinch should be practiced under both fresh and fatigued conditions to build the kind of tactical composure that the data associate with winning performance.

In terms of the broader landscape, data from the World Muaythai Council published by peer-reviewed practitioners suggest that approximately 30% of strikes landed in professional bouts originate from or are immediately preceded by clinch engagement [8]. Core strength training, shown in a 2025 PRISMA-compliant systematic review [9] to improve knee strike frequency and impact speed in Muay Thai through both static and dynamic training interventions, is a direct complement to clinch-specific drill work, given that knee strikes are the primary offensive weapon within the clinch.

Table 1 summarizes the available quantitative data on clinch-phase engagement across three competitive levels based on published match-analysis findings [4, 5, 7]. The distinctions across levels inform how drill complexity and intensity should be calibrated within the periodization model.

Table 1. Clinch engagement metrics across competitive levels (compiled by the author based on [4, 5, 7, 9]).

Metric	Amateur	Semi-pro	Professional
Clinch entries per round (mean)	2.1	3.4	5.2
Knee strikes from clinch per round	1.3	2.8	4.6
Successful sweep rate (%)	14%	22%	31%
Clinch time / total active time (%)	~12%	~19%	~27%

Grabbing frequency: winners vs. losers	n/a	n/a	W > L, r.2 p<.05
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The clinch in Muay Thai is a multi-positional grappling range that demands both upper-body strength and precise postural management. The fundamental entry is the double collar-tie (plum), in which both hands grip the posterior of the opponent's head with a palm-over-palm grip, elbows pressed inward against the clavicles. From this position, the fighter controls head angle, limiting defensive options, and delivers knee strikes to the body or head. Six foundational grip configurations have been described by practitioners and reflected in coaching literature: the double collar-tie, the 50-50, the overhook, the underhook, the cross-face, and the body lock. Each carries a distinct offensive and defensive profile [8].

Postural dominance, specifically control of the opponent's head relative to the fighter's own hips, determines whether knee strikes land with scoring force. Research on core strength training in combat sports [9] demonstrated that core activation directly influences the transfer of force to distal limbs, including the knees. This means that clinch effectiveness is not reducible to grip strength alone: the ability to maintain lumbar stability while pulling an opponent downward and driving a knee upward requires an integrated kinetic chain that conventional strength programs frequently neglect. A time-motion analysis adapted from methods used in kickboxing and applied to Muay Thai contexts [1, 10] places mean work-to-rest ratios at approximately 1:4, with clinch exchanges constituting brief but high-intensity bursts within that pattern.

Figure 2 presents the clinch phase as a sequential process, from entry through grip competition and postural control to offensive action and tactical outcome. This diagram represents an author-developed model built on the phase structure implied by the match-analysis data reviewed and the technical taxonomy described above. Coaches can use this sequence to structure drill progressions that address each phase transition individually before combining them in constrained sparring.

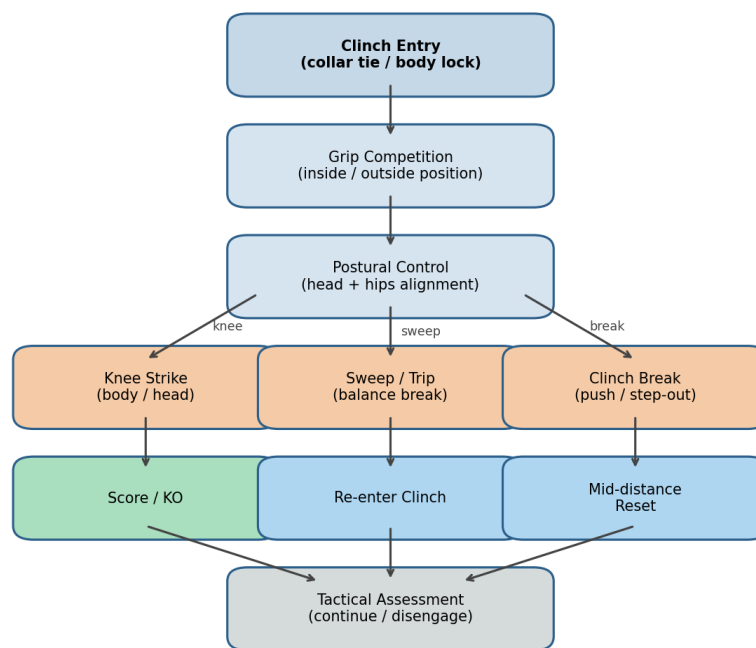


Figure 2. Sequential model of the Muay Thai clinch phase, from entry to tactical outcome (author's development based on [1, 4, 8, 18, 19]).

Clinch training methods can be organized into three layers that correspond to different learning objectives and training adaptations. This taxonomy is an original contribution of the present paper, derived from the synthesis of match-analysis findings, conditioning literature.

The first layer, technical training, targets isolated execution of individual clinch actions under minimal resistance. Typical drills include grip control repetitions against a stationary partner, knee strike isolation on a Thai pad with a partner holding the plum position, and sweep pattern rehearsal on a compliant partner. This layer prioritizes form, timing, and force application rather than competitive outcome. Research on skill acquisition in combat sports indicates that deliberate practice at low resistance is necessary before pattern recognition and automatic execution under pressure can develop [1].

The second layer, tactical training, introduces constraint-led scenarios that require the fighter to solve specific positional problems under partial resistance. Examples include "inside control only" position sparring, where one fighter must achieve and maintain inside grip before any attack is permitted; "knee-only" scoring games within clinch; and pacing games in which one partner must attempt to break the clinch while the other maintains it for a set time. This approach is consistent with the constrained sparring prescription made in the elite time-motion study [5], which identified tactical pacing as a primary winning variable and recommended constraint-led sparring as a training solution.

The third layer, physical conditioning for the clinch, addresses the specific strength and endurance demands of clinch work: neck and upper-back strength for collar-tie maintenance, hip mobility for knee strike range of motion, and anaerobic endurance for repeated high-intensity clinch exchanges. Neck strength training is supported by injury epidemiology data, which identified head and body injuries as the most common in national-level Muay Thai competition [11]. Hip mobility work is supported by the biomechanical finding that knee strike power depends on the range of hip flexion achieved in the strike, a movement that is directly constrained by the opponent's weight and position in the clinch [6].

Table 2 maps each drill category within the taxonomy to its primary adaptation target, the recommended load parameters, and the competitive preparation phase during which it is most appropriate. These parameters were derived from the conditioning recommendations reviewed and adapted to clinch-specific demands.

Table 2. Clinch drill taxonomy with load parameters and phase placement (Compiled by authors based on [1, 4, 5, 9, 12, 16, 17]).

Drill layer	Example drill	Primary adaptation	Load parameters	Phase
Technical	Grip isolation x 3 x 10 reps	Motor pattern, timing	Low intensity, high reps	GPP, SPP
Technical	Knee-on-pad from plum x 4 x 8	Force output, hip flexion range	Moderate intensity	GPP, SPP
Tactical	Inside-grip constraint sparring, 3 x 2 min	Grip decision speed	70-80% resistance	SPP, Pre-comp
Tactical	Pacing game: maintain clinch 90 s	Endurance under control	High intensity x 3 sets	Pre-comp
Physical	Neck flexion/lateral circuit x 3	Neck strength for collar-tie	2-3 x week, moderate	GPP, SPP
Physical	Hip mobility flow + loaded hip flexion	Knee strike ROM	Daily mobility, 2x loaded work	All phases
Physical	Anaerobic clinch circuit: 5 x 30 s	Metabolic endurance	High intensity, full effort	SPP, Pre-comp

Note. GPP = general preparatory phase; SPP = specific preparatory phase; Pre-comp = pre-competition phase; ROM = range of motion.

A periodization approach for Muay Thai technique has been discussed in practitioner literature drawing on Matveyev's classical model, in which training volume decreases and intensity increases as competition approaches while technical specificity rises

throughout the cycle (Heatrick, 2013) [13]. Translating this principle into clinch-specific terms, the present study proposes a four-phase model in which the proportion of clinch work within total training time, its intensity, and its specificity all increase progressively from the general preparatory phase through to competition.

In the general preparatory phase (GPP, approximately 8 weeks), clinch training constitutes roughly 30% of total technical work time. The emphasis is on isolated technical drills at low resistance, building the motor patterns for grip entry, postural alignment, and basic knee strike mechanics. Neck strength and hip mobility conditioning begin here. In the specific preparatory phase (SPP, approximately 6 weeks), clinch share rises to approximately 50% of technical time, with the introduction of constrained sparring scenarios and higher-resistance partner work. Physical conditioning shifts toward anaerobic capacity. In the pre-competition phase (approximately 4 weeks), clinch work reaches approximately 70% of technical time and focuses on full-resistance positional sparring, pacing games under fatigue, and drill-to-sparring integration. In competition week itself, volume reduces sharply while the fighter performs technical rehearsal at approximately 80% intensity.

This framework aligns with the physiological evidence that winning in elite Muay Thai depends on metabolic efficiency and late-round tactical composure rather than on raw physical capacity [5]. Coaches who front-load conditioning and back-load technical specificity risk producing athletes who are fit but tactically unprepared in decisive rounds. The proposed model deliberately inverts that pattern for the clinch.

Figure 3 displays the periodization model as a line chart showing the relative share of training volume, intensity, and clinch work across the four phases.

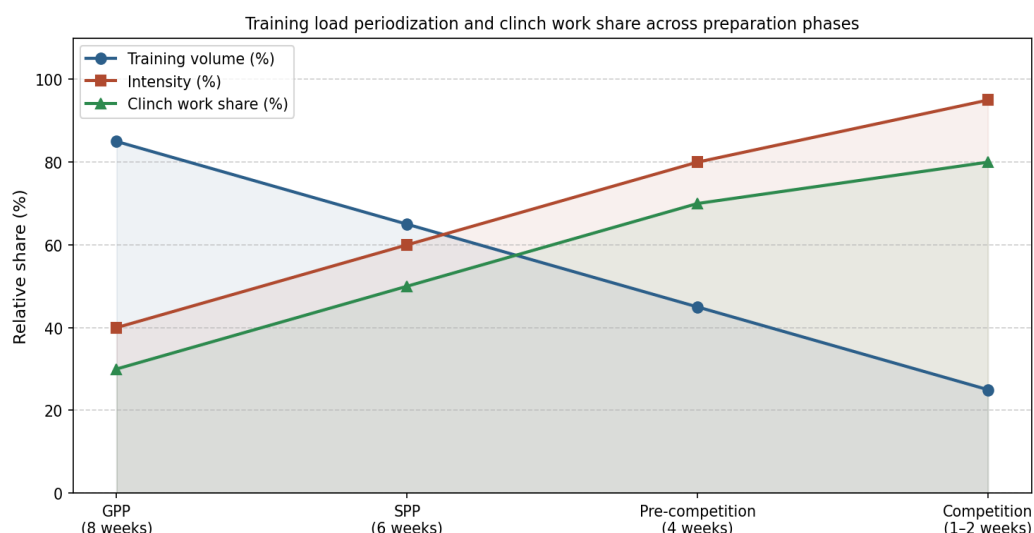


Figure 3. Training load periodization and clinch work share across four preparation phases (author's development based on [1, 5, 13]).

Table 3 presents the recommended clinch training distribution across a four-phase macrocycle, specifying total weekly session time, drill-layer proportions, and primary outcome targets for each phase. These parameters were developed by the authors through synthesis of the conditioning and match-analysis literature reviewed in this study.

Table 3. Recommended clinch training distribution across a four-phase macrocycle (compiled by authors based on [1, 5, 9, 13, 14, 15])

Phase	Duration	Clinch / total tech. time	Technical layer (%)	Tactical layer (%)	Physical layer (%)
GPP	8 weeks	~30%	60	20	20
SPP	6 weeks	~50%	40	40	20

Pre-competition	4 weeks	~70%	20	65	15
Competition week	1-2 weeks	~80%	30	70	0

Note. Percentages within each phase sum to 100 across the three drill layers.

Based on the findings synthesized above, this section offers five author-developed practical recommendations for Muay Thai coaches structuring clinch training at different competitive levels.

Recommendation 1: Sequence grip training before knee training. Match data consistently show that scoring knee strikes are produced from controlled grip positions. Coaches who begin clinch sessions with knee strike volume before addressing grip competition risk ingraining habits where the fighter attempts to score without positional control. Drill design should follow the phase sequence in Figure 2: entry, grip competition, postural control, then offense.

Recommendation 2: Use fatigue-state tactical drilling. The time-motion evidence [5] identifies round four as the round where losers show metabolic instability and make clinch errors. Coaches should schedule constrained clinch sparring after conditioning work, not before, to develop the tactical decision quality that must survive accumulated fatigue. A 5-minute anaerobic circuit followed immediately by 3 x 2-minute inside-grip position sparring is one practical implementation.

Recommendation 3: Track drill accuracy alongside volume. Research on winning performance across multiple match analyses (Bhumipol et al., 2023; Crisafulli et al., 2009) [4, 7] finds that winners and losers frequently differ in technique accuracy rather than technique frequency. Coaches should introduce simple observation-based accuracy ratings, for example a partner counting clean grip acquisitions per minute during drilling, to shift athlete attention from repetition count to execution quality.

Recommendation 4: Address neck strength as a specific training component. Injury epidemiology from national-level competition [11] identifies head and body injuries as the most common. In clinch, cervical loading is substantial during collar-tie control. A dedicated 10-15 minute neck strengthening circuit (flexion, lateral flexion, extension) twice per week during GPP and SPP provides direct injury prevention value alongside performance benefit.

Recommendation 5: Differentiate clinch work by weight category. Physical fitness data from Muay Thai athletes [12] indicate that body composition and strength profiles differ systematically across weight categories and that training loads must be adapted accordingly. Lighter fighters at whom quicker re-entry and sweep-based clinch tactics are more accessible require different tactical emphasis than heavier fighters who typically rely more heavily on strength dominance in the collar-tie.

Conclusion

This study examined the tactical and technical structure of the clinch phase in Muay Thai competition and synthesized available evidence into a structured coaching framework. Match-analysis data from peer-reviewed sources confirm that clinch competence, specifically grip acquisition rate, sweep success, and clinch evasion, distinguishes winners from losers in professional bouts, particularly in tactically decisive rounds. Physiological evidence confirms that winning depends on efficiency and tactical pacing rather than raw capacity, a finding with direct implications for how clinch training should be structured across the preparation cycle.

The study achieved its stated goal of developing an evidence-informed approach to clinch training integration. The three-layer drill taxonomy (technical, tactical, physical) and the four-phase periodization model represent original contributions to the training methodology literature for Muay Thai. The taxonomy provides coaches with a structured way to sequence clinch drills from isolated technical work through constrained sparring to physiological loading, while the periodization model specifies how the proportion and intensity of clinch work should shift as competition approaches.

The practical significance of this work lies in offering Muay Thai coaches, strength and conditioning specialists, and sports science researchers a verifiable, data-grounded framework that bridges the gap between competition performance data and daily training design. Coaches working at amateur, semi-professional, and professional levels can adapt the load parameters and drill examples to their specific contexts. Future research should validate the proposed periodization model through prospective controlled trials using

performance metrics such as clinch scoring rate, sweep-to-entry ratio, and round-specific technique accuracy to test whether the structured integration of clinch training produces measurable improvements in competitive outcomes.

REFERENCES

1. Mohamad, N. I., Chinnasee, C., Hemapandha, W., Vongjaturapat, N., Makaje, N., Ratanarojanakool, P., & Pimjan, L. (2017). Sports science-based research on the sport of Muay Thai: A review of the literature. *Walailak Journal of Science and Technology*, 14(8), 615–625.
2. Trial, W., & Wu, T. (2014). A kinematic analysis of the Thai boxing clinch. *Advances in Biomechanics and Applications*, 1(1), 57–66. <https://doi.org/10.12989/aba.2013.1.1.057>
3. International Federation of Muaythai Associations. (2023). IFMA rules and regulations: Version 2.04. International Federation of Muaythai Associations.
4. Bhumipol, P., Makaje, N., Kawjaratwilai, T., & Ruangthai, R. (2023). Match analysis of professional Muay Thai fighter between winner and loser. *Journal of Human Sport and Exercise*, 18(3), 657–669. <https://doi.org/10.14198/jhse.2023.183.12>
5. Makaje, N., Yupanon, A., Reungthai, R., Kaewjaratwilai, T., Chottidao, M., & Cimadoro, G. (2025). The interplay of time-motion profiles and physiological responses in winners versus losers of elite Muay Thai: A prospective, matched-pairs observational study. *SportRxiv*. <https://doi.org/10.51224/SRXIV.687>
6. Cappai, I., Pierantozzi, E., Tam, E., Tocco, F., Angius, L., Milia, R., Squatrito, S., Concu, A., & Crisafulli, A. (2012). Physiological responses and match analysis of Muay Thai fighting. *International Journal of Performance Analysis in Sport*, 12(3), 507–516. <https://doi.org/10.1080/24748668.2012.11868615>
7. Crisafulli, A., Vitelli, S., Cappai, I., Milia, R., Tocco, F., Melis, F., & Concu, A. (2009). Physiological responses and energy cost during a simulation of a Muay Thai boxing match. *Applied Physiology, Nutrition, and Metabolism*, 34(2), 143–150. <https://doi.org/10.1139/H09-002>
8. Chinnasee, C., Mohamad, N. I., Nadzalan, A. M., Sazili, A. H. A., Hemapandha, W., Pimjan, L., & Khan, T. K. A. (2017). Lower limb kinematics analysis during roundhouse kick among novices in Muay Thai. *Journal of Fundamental and Applied Sciences*, 9(6S), 1002–1010. <https://doi.org/10.4314/jfas.v9i6s.73>
9. Gavagan, C. J., & Sayers, M. G. L. (2017). A biomechanical analysis of the roundhouse kicking technique of expert practitioners: A comparison between the martial arts disciplines of Muay Thai, Karate, and Taekwondo. *PLOS ONE*, 12(8), e0182645. <https://doi.org/10.1371/journal.pone.0182645>
10. Zhang, S., Huang, W., Soh, K. G., Luo, S., Li, L., & Wang, X. (2025). Effects of core strength training on the technical skill performance of striking combat sport players: A systematic review. *PeerJ*, 13, e19615. <https://doi.org/10.7717/peerj.19615>
11. Ambroży, T., Wąsacz, W., Koteja, A., Żyłka, T., Stradomska, J., Piwowarski, J., & Rydzik, Ł. (2021). Special fitness level of combat sports athletes: Mixed martial arts (MMA) and Thai boxing (Muay Thai) in the aspect of training experience. *Journal of Kinesiology and Exercise Sciences*, 31(95), 25–37. <https://doi.org/10.5604/01.3001.0015.7582>
12. Wąsacz, W., Rydzik, Ł., Ouergui, I., Koteja, A., Ambroży, D., Ambroży, T., Ruzbarsky, P., & Rzepko, M. (2022). Comparison of the physical fitness profile of Muay Thai and Brazilian Jiu-Jitsu athletes with reference to training experience. *International Journal of Environmental Research and Public Health*, 19(14), 8451. <https://doi.org/10.3390/ijerph19148451>
13. Ouergui, I., Hssin, N., Haddad, M., Franchini, E., Behm, D. G., Wong, D. P., Gmada, N., & Bouhlel, E. (2014). Time-motion analysis of elite male kickboxing competition. *Journal of Strength and Conditioning Research*, 28(12), 3537–3543. <https://doi.org/10.1519/JSC.0000000000000579>
14. Tortu, E., Ouergui, I., Ulupinar, S., Özbay, S., Gençoğlu, C., & Ardigò, L. P. (2024). The contribution of energy systems during 30-second lower body Wingate anaerobic test in combat sports athletes: Intermittent versus single forms

and gender comparison. PLOS ONE, 19(5), e0303888. <https://doi.org/10.1371/journal.pone.0303888>

15. Strotmeyer, S., Jr., Coben, J. H., Fabio, A., Songer, T., & Brooks, M. (2016). Epidemiology of Muay Thai fight-related injuries. *Injury Epidemiology*, 3, Article 30. <https://doi.org/10.1186/s40621-016-0095-2>
16. Strotmeyer, S., Jr., & Lystad, R. P. (2017). Perception of injury risk among amateur Muay Thai fighters. *Injury Epidemiology*, 4, Article 2. <https://doi.org/10.1186/s40621-016-0099-y>
17. Hallaçeli, H., Davut, S., Özbek, A., & Aydın, E. (2025). Epidemiological analysis of athlete injuries in Muay Thai in-ring matches. *Injury Epidemiology*, 12, Article 28. <https://doi.org/10.1186/s40621-025-00569-x>
18. Myers, T. D., Nevill, A. M., & Al-Nakeeb, Y. (2013). A comparison of the effect of two different judging systems on the technique selection of Muay Thai competitors. *Journal of Human Sport and Exercise*, 8(3), 761–777. <https://doi.org/10.4100/jhse.2013.83.01>
19. Yagi, J. (2024). “Five” or “ten”: Analysing a co-operative correction in Muay Thai coaching. *Sports Coaching Review*, 13(1), 107–132. <https://doi.org/10.1080/21640629.2023.2246776>